U.S. Application No.: 10/538,758

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

#### LISTING OF CLAIMS:

1. (currently amended) A compound represented by formula (I):



wherein ring A represents an azepane ring

ring B represents a pyrimidine ring which may be substituted with 1-5 of  $\mathbb{R}^3$ ; plural  $\mathbb{R}^3$ 's each independently represents (1) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl and alkynyl may be substituted with 1 to 5 of  $\mathbb{R}^{10}$ , (2) oxo, or (3) $\mathbb{R}^{10}$ :

plural  $R^{10}$ s each independently represents (1)  $OR^{11}$ , (2)  $OCOR^{12}$ , (3)  $OCOOR^{13}$ , (4)  $NR^{14}R^{15}$ , (5)  $NR^{16}COR^{12}$ , (6)  $NR^{16}CONR^{14}R^{15}$ , (7)  $NR^{16}COOR^{13}$ , (8)  $COOR^{13}$ , (9)  $COR^{12}$ , (10)  $CONR^{14}R^{15}$ , (11)  $SO_2R^{12}$ , (12)  $SOR^{22}$ , (13)  $SO_2NR^{24}R^{25}$ , (14)  $NR^{16}SO_2R^{12}$ , (15)  $B(OH)_2$ , (16)  $SR^{11}$ , (17) halogen, (18) nitro, (19) cyano, or (20) ring D;

R<sup>11</sup> represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl and alkynyl may be substituted with 1 to 5 of halogen, NR<sup>14</sup>R<sup>15</sup>, OR<sup>21</sup>, SR<sup>21</sup>, COOR<sup>13</sup>, or ring D, or (iii) ring D:

 $R^{12}, R^{13}, R^{14}, R^{15} \ and \ R^{16} \ each \ independently \ represents (i) \ hydrogen, (ii) \ C1-15$  alkenyl or C2-15 alkynyl which may be substituted with ring D, or (iii) ring D;

ring D represents <u>pyrrole</u>, <u>imidazole</u>, <u>triazole</u>, <u>tetrazole</u>, <u>pyrazole</u>, <u>pyridine</u>, <u>pyrazine</u>, <u>pyrimidine</u>, <u>pyridazine</u>, <u>azepine</u>, <u>diazepine</u>, <u>furan</u>, <u>pyran</u>, <u>oxepine</u>, <u>thiophene</u>, <u>thiopyran</u>, <u>thiepine</u>, <u>oxazole</u>, <u>isoxazole</u>, <u>thiazole</u>, <u>isothiazole</u>, <u>furazan</u>, <u>oxadiazole</u>, <u>oxazine</u>, <u>oxadiazone</u>, <u>oxadiazole</u>, <u>oxazine</u>, <u>oxadiazole</u>, <u>thiadiazole</u>, <u>thi</u>

indazole, quinoline, isoquinoline, quinolizine, purine, phthalazine, pteridine, naphthyridine, quinoxaline, quinazoline, cinnoline, benzoxazole, benzothiazole, benzimidazole, chromene. benzoxepine, benzoxazepine, benzoxadiazepine, benzothiepine, benzothiazepine, benzothiadiazenine, benzatenine, benzodiazenine, benzofurazan, benzothiadiazole, benzotriazole, carbazole, beta-carboline, acridine, phenazine, dibenzofuran, xanthene, dibenzothiophene, phenothiazine, phenoxazine, phenoxathiin, thianthrene, phenanthridine, phenanthroline, perimidine, pyrroline, pyrrolidine, imidazoline, imidazolidine, triazoline, triazolidine, tetrazoline, tetrazolidine, pyrazoline, pyrazolidine, dihydropyridine, tetrahydropyridine, piperidine, dihydropyrazine, tetrahydropyrazine, piperazine, dihydropyrimidine, tetrahydropyrimidine, perhydropyrimidine, dihydropyridazine, tetrahydropyridazine, perhydropyridazine, dihydroazepine, tetrahydroazepine, perhydroazepine, dihydrodiazepine, tetrahydrodiazepine, perhydrodiazepine, dihydrooxazole, tetrahydrooxazole (oxazolidine), dihydroisoxazole, tetrahydroisoxazole (isoxazolidine), dihydrothiazole, tetrahydrothiazole (thiazolidine), dihydroisothiazole, tetrahydroisothiazole (isothiazolidine), dihydrofurazan, tetrahydrofurazan, dihydrooxadiazole, tetrahydrooxadiazole (oxadiazolidine), dihydrooxazine, tetrahydrooxazine, dihydrooxadiazine, tetrahydrooxadiazine, dihydrooxazepine, tetrahydrooxazepine, perhydrooxazepine, dihydrooxadiazepine, tetrahydrooxadiazepine, perhydrooxadiazepine, dihydrothiadiazole, tetrahydrothiadiazole (thiadiazolidine), dihydrothiazine, tetrahydrothiazine, dihydrothiadiazine, tetrahydrothiadiazine, dihydrothiazepine, tetrahydrothiazepine, perhydrothiazepine, dihydrothiadiazepine, tetrahydrothiadiazepine, perhydrothiadiazepine, morpholine, thiomorpholine, oxathiane, indoline, isoindoline, dihydroindazole, perhydroindazole, dihydroquinoline, tetrahydroquinoline, perhydroguinoline, dihydroisoguinoline, tetrahydroisoguinoline, perhydroisoguinoline, dihydrophthalazine, tetrahydrophthalazine, perhydrophthalazine, dihydronaphthyridine, tetrahydronaphthyridine, perhydronaphthyridine, dihydroquinoxaline, tetrahydroquinoxaline, perhydroquinoxaline, dihydroquinazoline, tetrahydroquinazoline, perhydroquinazoline. dihydrocinnoline, tetrahydrocinnoline, perhydrocinnoline, benzoxathiane, dihydrobenzoxazine, dihydrobenzothiazine, pyrazinomorpholine, dihydrobenzoxazole, perhydrobenzoxazole,

Attorney Docket No.: O88484

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Application No.: 10/538.758

dihydrobenzothiazole, perhydrobenzothiazole, dihydrobenzimidazole, perhydrobenzimidazole, dihydrobenzazepine, tetrahydrobenzazepine, dihydrobenzodiazepine, tetrahydrobenzodiazepine, benzodioxepane, dihydrobenzoxazepine, tetrahydrobenzoxazepine, dihydrocarbazole, tetrahydrocarbazole, perhydrocarbazole, dihydroacridine, tetrahydroacridine, perhydroacridine, cyclopropane, cyclobutane, cyclopentane, cyclohexane, cycloheptane, cyclooctane, cyclononane, cyclodecane, cycloundecane, cyclododecane, cyclotridecane, cyclotetradecane, cyclopentadecane, cyclopentene, cyclohexene, cycloheptene, cyclooctene, cyclopentadiene, cyclohexadiene, cycloheptadiene, cyclooctadiene, benzene, pentalene, perhydropentalene, azulene, perhydroazulene, indene, perhydroindene, indan, naphthalene, dihydronaphthalene, teterahydronaphthalene, perhydronaphthalene, heptalene, perhydroheptalene, biphenylene, asindacene, s-indacene, acenaphthylene, acenaphthene, fluorene, phenalene, phenanthrene, anthracene, spiro[4.4]nonane, spiro[4.5]decane, spiro[5.5]undecane, bicyclo[2.2.1]heptane. bicyclo[2.2.1]hept-2-ene, bicyclo[3.1.1]heptane, bicyclo[3.1.1]hept-2-ene, bicyclo[2.2.2]octane, bicyclo[2.2.2]oct-2-ene, adamantine or noradamantane;a C3-15 monocyclie, bicyclie or tricyclic earbocyclic group, or a 5- to 15-membered monocyclic, bicyclic or tricyclic heterocyclic group which contains 1 to 4 nitrogen atoms, 1 or 2 oxygen atoms and/or one sulfur atom; and

Attorney Docket No.: Q88484

ring D may be substituted with 1 to 5 of the groups selected from the following (1) to (22):

(1) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl or alkynyl may be substituted with 1 to 5 of OR<sup>21</sup>, OCOR<sup>22</sup>, OCOOR<sup>23</sup>, NR<sup>24</sup>R<sup>25</sup>, NR<sup>26</sup>COR<sup>22</sup>, NR<sup>26</sup>COOR<sup>23</sup>, COOR<sup>23</sup>, COOR<sup>23</sup>, COOR<sup>24</sup>, CONR<sup>24</sup>R<sup>25</sup>, SO<sub>2</sub>R<sup>22</sup>, SO<sub>2</sub>R<sup>22</sup>, SO<sub>2</sub>NR<sup>24</sup>R<sup>25</sup>, NR<sup>26</sup>COOR<sup>23</sup>, lalogen, nitro or cyano, (2) oxo, (3) OR<sup>21</sup>, (4) OCOR<sup>22</sup>, (5) OCOOR<sup>23</sup>, (6) NR<sup>24</sup>R<sup>25</sup>, (7) NR<sup>26</sup>COOR<sup>22</sup>, (8) NR<sup>26</sup>COOR<sup>24</sup>R<sup>25</sup>, (9) NR<sup>26</sup>COOR<sup>23</sup>, (10) COOR<sup>23</sup>, (11) COR<sup>22</sup>, (12) CONR<sup>24</sup>R<sup>25</sup>, (13) SO<sub>2</sub>R<sup>22</sup>, (14) SOR<sup>22</sup>, (15) SO<sub>2</sub>NR<sup>24</sup>R<sup>25</sup>, (16) NR<sup>26</sup>SO<sub>2</sub>R<sup>22</sup>, (17) B(OH)<sub>2</sub>, (18) SR<sup>21</sup>, (19) halogen, (20) nitro, (21) cyano or (22) ring E:

R<sup>21</sup> represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with COR<sup>22</sup>, NR<sup>24</sup>R<sup>25</sup> or ring E, or (iii) ring E;

Attorney Docket No.: Q88484 U.S. Application No.: 10/538,758

R<sup>22</sup>. R<sup>23</sup>. R<sup>24</sup>. R<sup>25</sup> and R<sup>26</sup> each independently represents (i) hydrogen, (ii) C1-15

alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with ring E, or (iii) ring E: ring E represents pyrrole, imidazole, triazole, tetrazole, pyrazole, pyridine, pyrazine, pyrimidine, pyridazine, azepine, diazepine, furan, pyran, oxepine, thiophene, thiopyran, thiepine, oxazole, isoxazole, thiazole, isothiazole, furazan, oxadiazole, oxazine, oxadiazine, oxazepine, oxadiazepine, thiadiazole, thiazine, thiadiazine, thiazepine, thiadiazepine, indole, isoindole, indolizine, benzofuran, isobenzofuran, benzothiophene, isobenzothiophene, dithianaphthalene, indazole, quinoline, isoquinoline, quinolizine, purine, phthalazine, pteridine, naphthyridine, quinoxaline, quinazoline, cinnoline, benzoxazole, benzothiazole, benzimidazole, chromene, benzoxepine, benzoxazepine, benzoxadiazepine, benzothiepine, benzothiazepine, benzothiadiazepine, benzazepine, benzodiazepine, benzofurazan, benzothiadiazole, benzotriazole, carbazole, beta-carboline, acridine, phenazine, dibenzofuran, xanthene, dibenzothiophene, phenothiazine, phenoxazine, phenoxathiin, thianthrene, phenanthridine, phenanthroline, perimidine, pyrroline, pyrrolidine, imidazoline, imidazolidine, triazoline, triazolidine, tetrazoline, tetrazolidine, pyrazoline, pyrazolidine, dihydropyridine, tetrahydropyridine, piperidine, dihydropyrazine, tetrahydropyrazine, piperazine, dihydropyrimidine, tetrahydropyrimidine, perhydropyrimidine, dihydropyridazine, tetrahydropyridazine, perhydropyridazine, dihydroazepine, tetrahydroazepine, perhydroazepine, dihydrodiazepine, tetrahydrodiazepine, perhydrodiazepine, dihydrooxazole, tetrahydrooxazole (oxazolidine), dihydroisoxazole, tetrahydroisoxazole (isoxazolidine), dihydrothiazole, tetrahydrothiazole (thiazolidine), dihydroisothiazole, tetrahydroisothiazole (isothiazolidine), dihydrofurazan, tetrahydrofurazan, dihydrooxadiazole, tetrahydrooxadiazole (oxadiazolidine). dihydrooxazine, tetrahydrooxazine, dihydrooxadiazine, tetrahydrooxadiazine, dihydrooxazepine, tetrahydrooxazepine, perhydrooxazepine, dihydrooxadiazepine, tetrahydrooxadiazepine. perhydrooxadiazepine, dihydrothiadiazole, tetrahydrothiadiazole (thiadiazolidine), dihydrothiazine, tetrahydrothiazine, dihydrothiadiazine, tetrahydrothiadiazine, dihydrothiazepine, tetrahydrothiazepine, perhydrothiazepine, dihydrothiadiazepine, tetrahydrothiadiazepine, perhydrothiadiazepine, morpholine, thiomorpholine, oxathiane,

AMENDMENT UNDER 37 C.F.R. § 1.114(c) Attorney Docket No.: Q88484 U.S. Application No.: 10/538.758

indoline, isoindoline, dihydroindazole, perhydroindazole, dihydroquinoline, tetrahydroquinoline, perhydroquinoline, dihydroisoquinoline, tetrahydroisoquinoline, perhydroisoquinoline, dihydrophthalazine, tetrahydrophthalazine, perhydrophthalazine, dihydronaphthyridine, tetrahydronaphthyridine, perhydronaphthyridine, dihydroquinoxaline, tetrahydroquinoxaline, perhydroquinoxaline, dihydroquinazoline, tetrahydroquinazoline, perhydroquinazoline, dihydrocinnoline, tetrahydrocinnoline, perhydrocinnoline, benzoxathiane, dihydrobenzoxazine, dihydrobenzothiazine, pyrazinomorpholine, dihydrobenzoxazole, perhydrobenzoxazole, dihydrobenzothiazole, perhydrobenzothiazole, dihydrobenzimidazole, perhydrobenzimidazole, dihydrobenzazepine, tetrahydrobenzazepine, dihydrobenzodiazepine, tetrahydrobenzodiazepine, benzodioxepane, dihydrobenzoxazepine, tetrahydrobenzoxazepine, dihydrocarbazole, tetrahydrocarbazole, perhydrocarbazole, dihydroacridine, tetrahydroacridine, perhydroacridine, cyclopropane, cyclobutane, cyclopentane, cyclohexane, cycloheptane, cyclooctane, cycloponane, cyclodecane, cycloundecane, cyclododecane, cyclotridecane, cyclotetradecane, cyclopentadecane, cyclopentene, cyclohexene, cyclohexene, cyclopentadiene, cyclohexadiene, cycloheptadiene, cyclooctadiene, benzene, pentalene, perhydropentalene, azulene, perhydroazulene, indene, perhydroindene, indan, naphthalene, dihydronaphthalene, teterahydronaphthalene, perhydronaphthalene, heptalene, perhydroheptalene, biphenylene, asindacene, s-indacene, acenaphthylene, acenaphthene, fluorene, phenalene, phenanthrene, anthracene, spiro[4.4]nonane, spiro[4.5]decane, spiro[5.5]undecane, bicyclo[2.2.1]heptane, bicyclo[2.2.1]hept-2-ene, bicyclo[3.1.1]heptane, bicyclo[3.1.1]hept-2-ene, bicyclo[2.2.2]octane, bicyclo[2.2.2]oct-2-ene, adamantine or noradamantanea C3-15 monocyclic, bicyclic or tricyclic carbocyclic group, or a 5- to 15-membered monocyclic, bicyclic or tricyclic heterocyclic group which contains 1 to 4 nitrogen atoms, 1 or 2 oxygen atoms and/or one sulfur atom, and

ring E may be substituted with 1 to 5 of (i) C1-15 alkyl which may be substituted with phenyl, (ii) halogen, (iii) phenyl, (iv) C1-15 alkoxy, (v) hydroxyl, (vi) amino, (vii) mono(C1-8 alkyl)amino, or (viii) di(C1-8 alkyl)amino; and

Y represents

AMENDMENT UNDER 37 C.F.R. § 1.114(c)

U.S. Application No.: 10/538,758



Attorney Docket No.: Q88484

wherein G represents a bond or a methylene;

ring J represents an azetidine, a pyrrolidine, a piperidine or a perhydroazepine which may be substituted with 1-5 of  $\mathbb{R}^3$  and

W represents hydrogen, a methyl, an ethyl, an isobutyl, a 3-methyl butyl, a 2-ethylbutyl, a cyclohexylmethyl, a cyclohexyl, a cyclopentyl, a benzyl, a benzene, cyclohexanol, 1-(cyclohexylcarbonyl)piperidine, a tetrahydropyran-4-yl or a piperidine,

or a salt thereof.

#### Claims 2-5, (canceled),

 (currently amended) The compound according to claim 1, which is represented by formula (I-2):



wherein ring B represents a pyrimidine ring which may be substituted with 1-5 of R<sup>3</sup>; plural R<sup>3</sup>'s each independently represents (1) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl and alkynyl may be substituted with 1 to 5 of R<sup>10</sup>, (2) oxo, or (3)R<sup>10</sup>; plural R<sup>10</sup>'s each independently represents (1) OR<sup>11</sup>, (2) OCOR<sup>12</sup>, (3) OCOOR<sup>13</sup>, (4) NR<sup>14</sup>R<sup>15</sup>, (5) NR<sup>16</sup>COOR<sup>12</sup>, (6) NR<sup>16</sup>CONR<sup>14</sup>, (7) NR<sup>16</sup>COOR<sup>13</sup>, (8) COOR<sup>13</sup>, (9) COR<sup>12</sup>, (10)

 ${\rm CONR}^{14}{\rm R}^{15}, (11)\,{\rm SO_2R^{12}}, (12)\,{\rm SOR^{22}}, (13)\,{\rm SO_2NR^{24}R^{25}}, (14)\,{\rm NR^{16}SO_2R^{12}}, (15)\,B({\rm OH})_2, (16)$  ...

SR<sup>11</sup>, (17) halogen, (18) nitro, (19) cyano, or (20) ring D;

R<sup>11</sup> represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl and alkynyl may be substituted with 1 to 5 of halogen, NR<sup>14</sup>R<sup>15</sup>, OR<sup>21</sup>, SR<sup>21</sup>, COOR<sup>13</sup>, or ring D, or (iii) ring D;

U.S. Application No.: 10/538,758

R<sup>12</sup>. R<sup>13</sup>. R<sup>14</sup>. R<sup>15</sup> and R<sup>16</sup> each independently represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with ring D, or (iii) ring D; ring D represents a pyrrole, imidazole, triazole, tetrazole, pyrazole, pyridine, pyrazine, pyrimidine, pyridazine, azepine, diazepine, furan, pyran, oxepine, thiophene. thiopyran, thiepine, oxazole, isoxazole, thiazole, isothiazole, furazan, oxadiazole, oxazine, oxadiazine, oxazepine, oxadiazepine, thiadiazole, thiazine, thiadiazine, thiadiazepine, thiadiazepine, indole, isoindole, indolizine, benzofuran, isobenzofuran, benzothiophene, isobenzothiophene, dithianaphthalene, indazole, quinoline, isoquinoline, quinolizine, purine, phthalazine, pteridine, naphthyridine, quinoxaline, quinazoline, cinnoline, benzoxazole, benzothiazole, benzimidazole, chromene, benzoxepine, benzoxazepine, benzoxadiazepine, benzothiepine, benzothiazepine, benzothiadiazepine, benzazepine, benzodiazepine, benzofurazan, benzothiadiazole, benzotriazole, carbazole, beta-carboline, acridine, phenazine, dibenzofuran, xanthene, dibenzothiophene, phenothiazine, phenoxazine, phenoxathiin, thianthrene, phenanthridine. phenanthroline, perimidine, pyrroline, pyrrolidine, imidazoline, imidazolidine, triazoline, triazolidine, tetrazoline, tetrazolidine, pyrazoline, pyrazolidine, dihydropyridine, tetrahydropyridine, piperidine, dihydropyrazine, tetrahydropyrazine, piperazine, dihydropyrimidine, tetrahydropyrimidine, perhydropyrimidine, dihydropyridazine, tetrahydropyridazine, perhydropyridazine, dihydroazepine, tetrahydroazepine, perhydroazepine, dihydrodiazepine, tetrahydrodiazepine, perhydrodiazepine, dihydrooxazole, tetrahydrooxazole (oxazolidine), dihydroisoxazole, tetrahydroisoxazole (isoxazolidine), dihydrothiazole, tetrahydrothiazole (thiazolidine), dihydroisothiazole, tetrahydroisothiazole (isothiazolidine), dihydrofurazan, tetrahydrofurazan, dihydrooxadiazole, tetrahydrooxadiazole (oxadiazolidine). dihydrooxazine, tetrahydrooxazine, dihydrooxadiazine, tetrahydrooxadiazine, dihydrooxazenine. tetrahydrooxazepine, perhydrooxazepine, dihydrooxadiazepine, tetrahydrooxadiazepine, perhydrooxadiazepine, dihydrothiadiazole, tetrahydrothiadiazole (thiadiazolidine), dihydrothiazine, tetrahydrothiazine, dihydrothiadiazine, tetrahydrothiadiazine, dihydrothiazepine, tetrahydrothiazepine, perhydrothiazepine, dihydrothiadiazepine, tetrahydrothiadiazepine, perhydrothiadiazepine, morpholine, thiomorpholine, oxathiane,

AMENDMENT UNDER 37 C.F.R. § 1.114(c) Attorney Docket No.: Q88484 U.S. Application No.: 10/538,758

indoline, isoindoline, dihydroindazole, perhydroindazole, dihydroquinoline, tetrahydroquinoline, perhydroguinoline, dihydroisoguinoline, tetrahydroisoguinoline, perhydroisoguinoline, dihydrophthalazine, tetrahydrophthalazine, perhydrophthalazine, dihydronaphthyridine, tetrahydronaphthyridine, perhydronaphthyridine, dihydroquinoxaline, tetrahydroquinoxaline, perhydroquinoxaline, dihydroquinazoline, tetrahydroquinazoline, perhydroquinazoline, dihydrocinnoline, tetrahydrocinnoline, perhydrocinnoline, benzoxathiane, dihydrobenzoxazine, dihydrobenzothiazine, pyrazinomorpholine, dihydrobenzoxazole, perhydrobenzoxazole, dihydrobenzothiazole, perhydrobenzothiazole, dihydrobenzimidazole, perhydrobenzimidazole, dihydrobenzazepine, tetrahydrobenzazepine, dihydrobenzodiazepine, tetrahydrobenzodiazepine, benzodioxepane, dihydrobenzoxazepine, tetrahydrobenzoxazepine, dihydrocarbazole, tetrahydrocarbazole, perhydrocarbazole, dihydroacridine, tetrahydroacridine, perhydroacridine, cyclopropane, cyclobutane, cyclopentane, cyclohexane, cycloheptane, cyclooctane, cyclononane, cyclodecane, cycloundecane, cyclododecane, cyclotridecane, cyclotetradecane, cyclopentadecane, cyclopentene, cyclohexene, cycloheptene, cyclopentadiene, cyclohexadiene, cycloheptadiene, cyclooctadiene, benzene, pentalene, perhydropentalene, azulene, perhydroazulene, indene, perhydroindene, indan, naphthalene, dihydronaphthalene, teterahydronaphthalene, perhydronaphthalene, heptalene, perhydroneptalene, biphenylene, asindacene, s-indacene, acenaphthylene, acenaphthene, fluorene, phenalene, phenanthrene, anthracene, spiro[4.4]nonane, spiro[4.5]decane, spiro[5.5]undecane, bicyclo[2.2.1]heptane, bicyclo[2.2.1]hept-2-ene, bicyclo[3.1.1]heptane, bicyclo[3.1.1]hept-2-ene, bicyclo[2.2.2]octane, bicyclo[2.2.2]oct-2-ene, adamantine or noradamantane C3-15-monocyclic, bicyclic or tricyclic earboeyelie group, or a 5- to 15-membered monocyclie, bicyclic or tricyclic heterocyclic group which contains 1 to 4 nitrogen atoms, 1 or 2 oxygen atoms and/or one sulfur atom; and

ring D may be substituted with 1 to 5 of the groups selected from the following (1) to (22):

(1) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl or alkynyl may be substituted with 1 to 5 of OR<sup>21</sup>, OCOR<sup>22</sup>, OCOOR<sup>23</sup>, NR<sup>24</sup>R<sup>25</sup>, NR<sup>26</sup>COR<sup>22</sup>, NR<sup>26</sup>CONR<sup>24</sup>R<sup>25</sup>, NR<sup>26</sup>COOR<sup>23</sup>, COOR<sup>23</sup>, COOR<sup>22</sup>, CONR<sup>24</sup>R<sup>25</sup>, SO<sub>2</sub>R<sup>22</sup>, SOR<sup>22</sup>, SO<sub>2</sub>NR<sup>24</sup>R<sup>25</sup>

U.S. Application No.: 10/538,758

$$\begin{split} NR^{26}SO_2R^{22}, B(OH)_2, SR^{21}, halogen, nitro or cyano, (2) oxo, (3) OR^{21}, (4) OCOR^{22}, (5) \\ OCOOR^{23}, (6) NR^{24}R^{25}, (7) NR^{26}COR^{22}, (8) NR^{26}CONR^{24}R^{25}, (9) NR^{26}COOR^{23}, (10) COOR^{23}, \\ (11) COR^{22}, (12) CONR^{24}R^{25}, (13) SO_2R^{22}, (14) SOR^{22}, (15) SO_2NR^{24}R^{25}, (16) NR^{26}SO_2R^{22}, \\ (17) B(OH)_2, (18) SR^{21}, (19) halogen, (20) nitro, (21) cyano or (22) ring E; \end{split}$$

 $R^{21} \ represents (i) \ hydrogen, (ii) \ C1-15 \ alkyl, C2-15 \ alkenyl \ or \ C2-15 \ alkynyl \ which may be substituted with COR^{22}, NR^{24}R^{25} \ or \ ring \ E, or (iii) \ ring \ E;$ 

 $R^{22}, R^{23}, R^{24}, R^{25} \ and \ R^{26} \ each \ independently \ represents (i) \ hydrogen, (ii) \ C1-15$  alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with ring E, or (iii) ring E;

ring E represents a pyrrole, imidazole, triazole, tetrazole, pyrazole, pyridine, pyrazine, pyrimidine, pyridazine, azepine, diazepine, furan, pyran, oxepine, thiophene, thiopyran, thiepine, oxazole, isoxazole, thiazole, isothiazole, furazan, oxadiazole, oxazine, oxadiazine, oxazepine, oxadiazepine, thiadiazole, thiazine, thiadiazine, thiazepine, thiadiazepine, indole, isoindole, indolizine, benzofuran, isobenzofuran, benzothiophene, isobenzothiophene, dithianaphthalene, indazole, quinoline, isoquinoline, quinolizine, purine, phthalazine, pteridine, naphthyridine, quinoxaline, quinazoline, cinnoline, benzoxazole, benzothiazole, benzimidazole, chromene, benzoxepine, benzoxazepine, benzoxadiazepine, benzothiepine, benzothiazepine, benzothiadiazepine, benzazepine, benzodiazepine, benzofurazan, benzothiadiazole, benzotriazole, carbazole, beta-carboline, acridine, phenazine, dibenzofuran, xanthene, dibenzothiophene, phenothiazine, phenoxazine, phenoxathiin, thianthrene, phenanthridine, phenanthroline, perimidine, pyrroline, pyrrolidine, imidazoline, imidazolidine, triazoline, triazolidine, tetrazoline, tetrazolidine, pyrazoline, pyrazolidine, dihydropyridine, tetrahydropyridine, piperidine, dihydropyrazine, tetrahydropyrazine, piperazine, dihydropyrimidine, tetrahydropyrimidine, perhydropyrimidine, dihydropyridazine, tetrahydropyridazine, perhydropyridazine, dihydroazepine, tetrahydroazepine, perhydroazepine, dihydrodiazepine, tetrahydrodiazepine, perhydrodiazepine, dihydrooxazole, tetrahydrooxazole (oxazolidine), dihydroisoxazole, tetrahydroisoxazole (isoxazolidine), dihydrothiazole, tetrahydrothiazole (thiazolidine), dihydroisothiazole, tetrahydroisothiazole (isothiazolidine), dihydrofurazan, tetrahydrofurazan, dihydrooxadiazole, tetrahydrooxadiazole (oxadiazolidine),

dihydrooxazine, tetrahydrooxazine, dihydrooxadiazine, tetrahydrooxadiazine, dihydrooxazepine. tetrahydrooxazepine, perhydrooxazepine, dihydrooxadiazepine, tetrahydrooxadiazepine, perhydrooxadiazepine, dihydrothiadiazole, tetrahydrothiadiazole (thiadiazolidine), dihydrothiazine, tetrahydrothiazine, dihydrothiadiazine, tetrahydrothiadiazine, dihydrothiazepine, tetrahydrothiazepine, perhydrothiazepine, dihydrothiadiazepine, tetrahydrothiadiazepine, perhydrothiadiazepine, morpholine, thiomorpholine, oxathiane, indoline, isoindoline, dihydroindazole, perhydroindazole, dihydroquinoline, tetrahydroquinoline, perhydroquinoline, dihydroisoquinoline, tetrahydroisoquinoline, perhydroisoquinoline, dihydrophthalazine, tetrahydrophthalazine, perhydrophthalazine, dihydronaphthyridine. tetrahydronaphthyridine, perhydronaphthyridine, dihydroquinoxaline, tetrahydroquinoxaline, perhydroquinoxaline, dihydroquinazoline, tetrahydroquinazoline, perhydroquinazoline, dihydrocinnoline, tetrahydrocinnoline, perhydrocinnoline, benzoxathiane, dihydrobenzoxazine, dihydrobenzothiazine, pyrazinomorpholine, dihydrobenzoxazole, perhydrobenzoxazole, dihydrobenzothiazole, perhydrobenzothiazole, dihydrobenzimidazole, perhydrobenzimidazole, dihydrobenzazepine, tetrahydrobenzazepine, dihydrobenzodiazepine, tetrahydrobenzodiazepine. benzodioxepane, dihydrobenzoxazepine, tetrahydrobenzoxazepine, dihydrocarbazole, tetrahydrocarbazole, perhydrocarbazole, dihydroacridine, tetrahydroacridine, perhydroacridine, cyclopropane, cyclobutane, cyclopentane, cyclohexane, cycloheptane, cyclooctane, cycloponane, cyclodecane, cycloundecane, cyclododecane, cyclotridecane, cyclotetradecane, cyclopentadecane, cyclopentene, cyclohexene, cyclohexene, cyclopentadiene. cyclohexadiene, cycloheptadiene, cyclooctadiene, benzene, pentalene, perhydropentalene, azulene, perhydroazulene, indene, perhydroindene, indan, naphthalene, dihydronaphthalene, teterahydronaphthalene, perhydronaphthalene, heptalene, perhydroheptalene, biphenylene, asindacene, s-indacene, acenaphthylene, acenaphthene, fluorene, phenalene, phenanthrene. anthracene, spiro[4.4]nonane, spiro[4.5]decane, spiro[5.5]undecane, bicyclo[2.2.1]heptane, bicyclo[2.2.1]hept-2-ene, bicyclo[3.1.1]heptane, bicyclo[3.1.1]hept-2-ene, bicyclo[2.2.2]octane, bicyclo[2.2.2]oct-2-ene, adamantine or noradamantaneC3-15 monocyclic, bicyclic or tricyclic

U.S. Application No.: 10/538,758

earboeyelic group, or a 5- to 15-membered monocyelic, bicyclic or tricyclic heterocyclic group which contains 1 to 4 nitrogen atoms, 1 or 2 oxygen atoms and/or one sulfur-atom, and

ring E may be substituted with 1 to 5 of (i) C1-15 alkyl which may be substituted with phenyl, (ii) halogen, (iii) phenyl, (iv) C1-15 alkoxy, (v) hydroxyl, (vi) amino, (vii) mono(C1-8 alkyl)amino, or (viii) di(C1-8 alkyl)amino;

ring J represents an azetidine, a pyrrolidine, a piperidine or a perhydroazepine which may be substituted with 1-5 of  $\mathbb{R}^3$ ; and

W represents hydrogen, a methyl, an ethyl, an isobutyl, a 3-methyl butyl, a 2-ethylbutyl, a cyclohexylmethyl, a cyclohexyl, a cyclopentyl, a benzyl, a benzene, cyclohexanol, 1-(cyclohexylcarbonyl)piperidine, a tetrahydropyran-4-yl or a piperidine.

## Claim 7. (canceled).

8. (currently amended) A compound represented by formula (I-B):

wherein ring A<sup>B</sup> represents an azepane ring; ring B<sup>B</sup> represents:

wherein the upward arrow represents a binding position to ring  $A^B$ ; and the right-downward arrow represents a binding position to the nitrogen atom bound to L;

L represents (1) a bond, (2) C1-8 alkylene, C2-8 alkenylene or C2-8 alkynylene, wherein the alkylene, alkenylene and alkynylene each may be substituted with 1 to 5 of R<sup>10</sup>, or (3) a C3-8 carbocyclic group which may be substituted with R<sup>3</sup>;

Q represents (1)  $NR^1R^2$  wherein  $R^1$  and  $R^2$  each independently represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with 1 to 5

of  $R^{10}$ , (iii) a C3-8 carbocyclic group which may be substituted with 1 to 5 of  $R^3$ , or (iv) a 5-to 15-membered heterocyclic group which contains 1 or 2 nitrogen atoms, 1 or 2 oxygen atoms and/or one sulfur atom and which may be substituted 1 to 5 of  $R^3$ , or (2) ring C;

ring C represents a 4- to 15-membered heterocyclic group which is fully saturated and which contains at least one nitrogen atom and may further contain 1 or 2 nitrogen atoms, 1 or 2 oxygen atoms and/or one sulfur atom and which may be substituted with 1 to 5 of  $\mathbb{R}^3$ ;

plural  $R^3$ s each independently represents (1) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl and alkynyl may be substituted with 1 to 5 of  $R^{10}$ , (2) oxo, or (3) $R^{10}$ ;

plural  $R^{10}$ s each independently represents (1)  $OR^{11}$ , (2)  $OCOR^{12}$ , (3)  $OCOOR^{13}$ , (4)  $NR^{14}R^{15}$ , (5)  $NR^{16}COR^{12}$ , (6)  $NR^{16}CONR^{14}R^{15}$ , (7)  $NR^{16}COOR^{13}$ , (8)  $COOR^{13}$ , (9)  $COR^{12}$ , (10)  $CONR^{14}R^{15}$ , (11)  $SO_2R^{12}$ , (12)  $SOR^{22}$ , (13)  $SO_2NR^{24}R^{25}$ , (14)  $NR^{16}SO_2R^{12}$ , (15)  $B(OH)_2$ , (16)  $SR^{11}$ , (17) halogen, (18) nitro, (19) cyano, or (20) ring D;

 $R^{11}$  represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl and alkynyl may be substituted with 1 to 5 of halogen,  $NR^{14}R^{15}$ ,  $OR^{21}$ ,  $SR^{21}$ ,  $COOR^{13}$ , or ring D, or (iii) ring D;

 $R^{12}$ ,  $R^{13}$ ,  $R^{14}$ ,  $R^{15}$  and  $R^{16}$  each independently represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with ring D, or (iii) ring D;

ring D represents a <u>pyrrole, imidazole, triazole, tetrazole, pyrazole, pyridine, pyrazine, pyrindine, pyridazine, azepine, diazepine, furan, pyran, oxepine, thiophene, thiopyran, thiepine, oxazole, isoxazole, thiazole, isothiazole, furazan, oxadiazole, oxazine, oxadiazine, oxazepine, oxadiazepine, thiadiazole, thiazine, thiadiazine, thiazepine, thiadiazepine, indole, isoindole, indolizine, benzofuran, isobenzofuran, benzothiophene, isobenzothiophene, dithianaphthalene, indazole, quinoline, isoquinoline, quinolizine, purine, phthalazine, pteridine, naphthyridine, quinoxaline, quinazoline, cinnoline, benzoxazole, benzothiazole, benzimidazole, chromene, benzoxepine, benzoxazepine, benzoxadiazepine, benzothiadiazole, benzothiadiazole, benzothiadiazole, benzothiadiazole, benzothiadiazole, benzothiae, benzothie, benzothiae, benzothiae, benzothiae, benzothiae, benzothiae, benzothiae, benzothiae, acridine, phenazine, dibenzofuran, xanthene,</u>

dibenzothiophene, phenothiazine, phenoxazine, phenoxathiin, thianthrene, phenanthridine, phenanthroline, perimidine, pyrroline, pyrrolidine, imidazoline, imidazolidine, triazoline, triazolidine, tetrazoline, tetrazolidine, pyrazoline, pyrazolidine, dihydropyridine, tetrahydropyridine, piperidine, dihydropyrazine, tetrahydropyrazine, piperazine, dihydropyrimidine, tetrahydropyrimidine, perhydropyrimidine, dihydropyridazine, tetrahydropyridazine, perhydropyridazine, dihydroazepine, tetrahydroazepine, perhydroazepine. dihydrodiazepine, tetrahydrodiazepine, perhydrodiazepine, dihydrooxazole, tetrahydrooxazole (oxazolidine), dihydroisoxazole, tetrahydroisoxazole (isoxazolidine), dihydrothiazole. tetrahydrothiazole (thiazolidine), dihydroisothiazole, tetrahydroisothiazole (isothiazolidine). dihydrofurazan, tetrahydrofurazan, dihydrooxadiazole, tetrahydrooxadiazole (oxadiazolidine), dihydrooxazine, tetrahydrooxazine, dihydrooxadiazine, tetrahydrooxadiazine, dihydrooxazepine, tetrahydrooxazepine, perhydrooxazepine, dihydrooxadiazepine, tetrahydrooxadiazepine, perhydrooxadiazepine, dihydrothiadiazole, tetrahydrothiadiazole (thiadiazolidine), dihydrothiazine, tetrahydrothiazine, dihydrothiadiazine, tetrahydrothiadiazine, dihydrothiazepine, tetrahydrothiazepine, perhydrothiazepine, dihydrothiadiazepine, tetrahydrothiadiazepine, perhydrothiadiazepine, morpholine, thiomorpholine, oxathiane, indoline, isoindoline, dihydroindazole, perhydroindazole, dihydroquinoline, tetrahydroquinoline, perhydroquinoline, dihydroisoquinoline, tetrahydroisoquinoline, perhydroisoquinoline, dihydrophthalazine, tetrahydrophthalazine, perhydrophthalazine, dihydronaphthyridine, tetrahydronaphthyridine, perhydronaphthyridine, dihydroquinoxaline, tetrahydroquinoxaline, perhydroquinoxaline, dihydroquinazoline, tetrahydroquinazoline, perhydroquinazoline, dihydrocinnoline, tetrahydrocinnoline, perhydrocinnoline, benzoxathiane, dihydrobenzoxazine, dihydrobenzothiazine, pyrazinomorpholine, dihydrobenzoxazole, perhydrobenzoxazole, dihydrobenzothiazole, perhydrobenzothiazole, dihydrobenzimidazole, perhydrobenzimidazole, dihydrobenzazepine, tetrahydrobenzazepine, dihydrobenzodiazepine, tetrahydrobenzodiazepine, benzodioxepane, dihydrobenzoxazepine, tetrahydrobenzoxazepine, dihydrocarbazole, tetrahydrocarbazole, perhydrocarbazole, dihydroacridine, tetrahydroacridine, perhydroacridine, cyclopropane, cyclobutane, cyclopentane, cyclohexane, cycloheptane, cyclooctane, cyclononane. cyclodecane, cycloundecane, cyclodecane, cyclotridecane, cyclotetradecane, cyclopentadiene, perhydropentalene, perhydropentalene, perhydronaphthalene, teterahydronaphthalene, perhydronaphthalene, perhydronaphthalene, perhydronaphthalene, perhydronaphthalene, biphenylene, as-indacene, s-indacene, acenaphthylene, acenaphthene, fluorene, phenalene, phenanthrene, anthracene, spiro[4.4]nonane, spiro[4.5]decane, spiro[5.5]undecane, bicyclo[2.2.1]heptane, bicyclo[2.2.1]heptane, bicyclo[2.2.1]heptane, bicyclo[2.2.2]octane, b

Attorney Docket No.: O88484

ring D may be substituted with 1 to 5 of the groups selected from the following (1) to (22):

(1) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl or alkynyl may be substituted with 1 to 5 of OR<sup>21</sup>, OCOR<sup>22</sup>, OCOOR<sup>23</sup>, NR<sup>24</sup>R<sup>25</sup>, NR<sup>26</sup>COR<sup>22</sup>, NR<sup>26</sup>COOR<sup>23</sup>, COOR<sup>23</sup>, COOR<sup>23</sup>, CONR<sup>24</sup>R<sup>25</sup>, SO<sub>2</sub>R<sup>22</sup>, SO<sub>2</sub>R<sup>23</sup>, SO<sub>2</sub>NR<sup>24</sup>R<sup>25</sup>, NR<sup>26</sup>SO<sub>2</sub>R<sup>22</sup>, B(OH)<sub>2</sub>, SR<sup>21</sup>, halogen, nitro or cyano, (2) oxo, (3) OR<sup>21</sup>, (4) OCOR<sup>22</sup>, (5) OCOOR<sup>23</sup>, (6) NR<sup>24</sup>R<sup>25</sup>, (7) NR<sup>26</sup>COR<sup>22</sup>, (8) NR<sup>26</sup>CONR<sup>24</sup>R<sup>25</sup>, (9) NR<sup>26</sup>COOR<sup>23</sup>, (10) COOR<sup>23</sup>, (11) COR<sup>22</sup>, (12) CONR<sup>24</sup>R<sup>25</sup>, (13) SO<sub>2</sub>R<sup>22</sup>, (14) SOR<sup>22</sup>, (15) SO<sub>2</sub>NR<sup>24</sup>R<sup>25</sup>, (16) NR<sup>26</sup>SO<sub>2</sub>R<sup>22</sup>, (17) B(OH)<sub>2</sub>, (18) SR<sup>21</sup>, (19) halogen, (20) nitro, (21) cyano or (22) ring E;

 $R^{21} \ represents (i) \ hydrogen, (ii) \ C1-15 \ alkyl, C2-15 \ alkenyl \ or \ C2-15 \ alkynyl \ which may be substituted with COR^{22}, NR^{24}R^{25} \ or \ ring \ E, or (iii) \ ring \ E;$ 

R<sup>22</sup>, R<sup>23</sup>, R<sup>24</sup>, R<sup>25</sup> and R<sup>26</sup> each independently represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with ring E, or (iii) ring E;

ring E represents a C3-15-monocyclie, bicyclic or tricyclic carbocyclic group, or a 5to-15-membered-monocyclic, bicyclic or tricyclic heterocyclic group which contains 1-to-4
nitrogen-atoms, 1-or 2-oxygen-atoms and/or one sulfur atompyrrole, imidazole, triazole, tetrazole,
pyrazole, pyridine, pyrazine, pyrimidine, pyridazine, azepine, diazepine, furan, pyran, oxepine,

thiophene, thiopyran, thiepine, oxazole, isoxazole, thiazole, isothiazole, furazan, oxadiazole, oxazine, oxadiazine, oxazenine, oxadiazenine, thiadiazole, thiazine, thiadiazine, thiazenine, thiadiazepine, indole, isoindole, indolizine, benzofuran, isobenzofuran, benzothiophene, isobenzothiophene, dithianaphthalene, indazole, quinoline, isoquinoline, quinolizine, purine. phthalazine, pteridine, naphthyridine, quinoxaline, quinazoline, cinnoline, benzoxazole, benzothiazole, benzimidazole, chromene, benzoxepine, benzoxazepine, benzoxadiazepine, benzothiepine, benzothiazepine, benzothiadiazepine, benzazepine, benzodiazepine, benzofurazan, benzothiadiazole, benzotriazole, carbazole, beta-carboline, acridine, phenazine, dibenzofuran, xanthene, dibenzothiophene, phenothiazine, phenoxazine, phenoxathiin, thianthrene, phenanthridine, phenanthroline, perimidine, pyrroline, pyrrolidine, imidazoline, imidazolidine, triazoline, triazolidine, tetrazoline, tetrazolidine, pyrazoline, pyrazolidine, dihydropyridine, tetrahydropyridine, piperidine, dihydropyrazine, tetrahydropyrazine, piperazine, dihydropyrimidine, tetrahydropyrimidine, perhydropyrimidine, dihydropyridazine, tetrahydropyridazine, perhydropyridazine, dihydroazepine, tetrahydroazepine, perhydroazepine, dihydrodiazepine, tetrahydrodiazepine, perhydrodiazepine, dihydrooxazole, tetrahydrooxazole (oxazolidine), dihydroisoxazole, tetrahydroisoxazole (isoxazolidine), dihydrothiazole, tetrahydrothiazole (thiazolidine), dihydroisothiazole, tetrahydroisothiazole (isothiazolidine), dihydrofurazan, tetrahydrofurazan, dihydrooxadiazole, tetrahydrooxadiazole (oxadiazolidine), dihydrooxazine, tetrahydrooxazine, dihydrooxadiazine, tetrahydrooxadiazine, dihydrooxazepine, tetrahydrooxazepine, perhydrooxazepine, dihydrooxadiazepine, tetrahydrooxadiazepine, perhydrooxadiazepine, dihydrothiadiazole, tetrahydrothiadiazole (thiadiazolidine), dihydrothiazine, tetrahydrothiazine, dihydrothiadiazine, tetrahydrothiadiazine, dihydrothiazepine, tetrahydrothiazepine, perhydrothiazepine, dihydrothiadiazepine, tetrahydrothiadiazepine, perhydrothiadiazepine, morpholine, thiomorpholine, oxathiane, indoline, isoindoline, dihydroindazole, perhydroindazole, dihydroquinoline, tetrahydroquinoline, perhydroguinoline, dihydroisoguinoline, tetrahydroisoguinoline, perhydroisoguinoline, dihydrophthalazine, tetrahydrophthalazine, perhydrophthalazine, dihydronaphthyridine, tetrahydronaphthyridine, perhydronaphthyridine, dihydroquinoxaline, tetrahydroquinoxaline,

Attorney Docket No.: O88484

U.S. Application No.: 10/538,758

perhydroquinoxaline, dihydroquinazoline, tetrahydroquinazoline, perhydroquinazoline, dihydrocinnoline, tetrahydrocinnoline, perhydrocinnoline, benzoxathiane, dihydrobenzoxazine, dihydrobenzothiazine, pyrazinomorpholine, dihydrobenzoxazole, perhydrobenzoxazole, dihydrobenzothiazole, perhydrobenzothiazole, dihydrobenzimidazole, perhydrobenzimidazole, dihydrobenzazepine, tetrahydrobenzazepine, dihydrobenzodiazepine, tetrahydrobenzodiazepine, benzodioxepane, dihydrobenzoxazepine, tetrahydrobenzoxazepine, dihydrocarbazole, tetrahydrocarbazole, perhydrocarbazole, dihydroacridine, tetrahydroacridine, perhydroacridine, cyclopropane, cyclobutane, cyclopentane, cyclohexane, cycloheptane, cyclooctane, cyclononane, cyclodecane, cycloundecane, cyclododecane, cyclotridecane, cyclotetradecane, cyclopentadecane, cyclopentene, cyclohexene, cyclohexene, cyclopentadiene. cyclohexadiene, cycloheptadiene, cyclooctadiene, benzene, pentalene, perhydropentalene, azulene, perhydroazulene, indene, perhydroindene, indan, naphthalene, dihydronaphthalene, teterahydronaphthalene, perhydronaphthalene, heptalene, perhydroheptalene, biphenylene, asindacene, s-indacene, acenaphthylene, acenaphthene, fluorene, phenalene, phenanthrene, anthracene, spiro[4,4]nonane, spiro[4,5]decane, spiro[5,5]undecane, bicyclo[2,2,1]heptane. bicyclo[2,2,1]hept-2-ene, bicyclo[3,1,1]heptane, bicyclo[3,1,1]hept-2-ene, bicyclo[2,2,2]octane. bicyclo[2.2.2]oct-2-ene, adamantine or noradamantane, and

ring E may be substituted with 1 to 5 of (i) C1-15 alkyl which may be substituted with phenyl, (ii) halogen, (iii) phenyl, (iv) C1-15 alkoxy, (v) hydroxyl, (vi) amino, (vii) mono(C1-8 alkyl)amino, or (viii) di(C1-8 alkyl)amino;

ring AB may be substituted with 1-5 of Ra;

ring B<sup>B</sup> may be substituted with 1-5 of R<sup>b</sup>;

 $R^a$  and  $R^b$  each independently represents a group which has the same meaning as the group represented by  $R^3,$  or

a salt thereof.

9. (previously presented) The compound according to any one of claims 1 and 8, which is

AMENDMENT UNDER 37 C.F.R. § 1.114(c) Attorney Docket No.: Q88484 U.S. Application No.: 10/538,758

- (1) N-(4-azepan-1-ylpyrimidin-2-yl)ethane-1,2-diamine,
- (2) N¹-(4-azepan-1-ylpyrimidin-2-yl)-N²,N²-dimethylethane-1,2-diamine,
- (3) 4-azepan-1-yl-N-((3S)-1-cyclohexylpyrrolidin-3-yl)pyrimidin-2-amine,
- (4) 4-azepan-1-yl-N-((3S)-1-benzylpyrrolidin-3-yl)pyrimidin-2-amine,
- (5) 4-azepan-1-yl-N-((3S)-1-(2-ethylbutyl)piperidin-3-yl)pyrimidin-2-amine,
- (6) 4-azepan-1-yl-N-[(3S)-1-cyclohexylpiperidin-3-yl]pyrimidin-2-amine,
- (7) 4-azepan-1-yl-N-[(3S)-1-tetrahydro-2H-pyran-4-ylpiperidin-3-yl]pyrimidin-2-amine,
- (8) 4-(3S)-3-[(4-azepan-1-ylpyrimidin-2-yl)amino]piperidin-1-ylcyclohexanol, or
- (9) (3S)-N-(4-azepan-1-ylpyrimidin-2-yl)-1'-(cyclohexylcarbonyl)-1,4'-bipiperidin-3amine.
- 10. (previously presented) A pharmaceutical composition, which comprises the compound represented by formula (I) according to claim 1, or a salt thereof, and a pharmaceutically acceptable carrier.

## Claims 11 - 22. (canceled)

23. (previously presented) A CXCR4 antagonist composition, which comprises the compound represented by formula (I-B) according to claim 8, or a salt thereof, as an active ingredient, and a pharmaceutically acceptable carrier.

# Claims 24 - 27. (canceled)

28. (previously presented): A medicament which comprises the compound according to any one of claims 1 and 8, or a salt thereof, in combination with one or at least two of a reverse transferase inhibitor, a protease inhibitor.

U.S. Application No.: 10/538,758

29. (Original) The medicament according to claim 28, wherein the reverse transferase inhibitor is one or at least two selected from zidovudine, didanosine, zalcitabine, stavudine, lamiyudine, abaçayir, adefoyir, dipiyoxil, emtricitabine, tenofoyir, nevirapine, nevirapine, efavirenz and capravirine.

30. (Original) The medicament according to claim 28, wherein the protease inhibitor is one or at least two selected from indinavir, ritonavir, nelfinavir, saquinavir, amprenavir, lopinavir and lopinavir.

## Claims 31-32, (canceled)

33. (previously presented) A method for treating human immunodeficiency virus infection, which comprises administering to a subject in need thereof an effective amount of a compound represented by formula (I):



wherein ring A represents an azepane ring:

ring B represents a pyrimidine ring which may be substituted with 1-5 of R<sup>3</sup>;

plural R3's each independently represents (1) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl and alkynyl may be substituted with 1 to 5 of R<sup>10</sup>, (2) oxo, or (3)R<sup>10</sup>;

plural R<sup>10</sup>'s each independently represents (1) OR<sup>11</sup>, (2) OCOR<sup>12</sup>, (3) OCOOR<sup>13</sup>, (4)

 $NR^{14}R^{15}$ , (5)  $NR^{16}COR^{12}$ , (6)  $NR^{16}CONR^{14}R^{15}$ , (7)  $NR^{16}COOR^{13}$ , (8)  $COOR^{13}$ , (9)  $COR^{12}$ , (10)  $CONR^{14}R^{15}$ , (11)  $SO_2R^{12}$ , (12)  $SOR^{22}$ , (13)  $SO_2NR^{24}R^{25}$ , (14)  $NR^{16}SO_2R^{12}$ , (15)  $B(OH)_2$ , (16)

SR<sup>11</sup>, (17) halogen, (18) nitro, (19) cyano, or (20) ring D;

R<sup>11</sup> represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl and alkynyl may be substituted with 1 to 5 of halogen, NR<sup>14</sup>R<sup>15</sup>, OR<sup>21</sup>, SR<sup>21</sup>, COOR<sup>13</sup>, or ring D, or (iii) ring D:

 $R^{12}$ ,  $R^{13}$ ,  $R^{14}$ ,  $R^{15}$  and  $R^{16}$  each independently represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with ring D, or (iii) ring D;

ring D represents a C3-15 monocyclic, bicyclic or tricyclic carbocyclic group, or a 5to 15-membered monocyclic, bicyclic or tricyclic heterocyclic group which contains 1 to 4 nitrogen atoms, 1 or 2 oxygen atoms and/or one sulfur atom; and

ring D may be substituted with 1 to 5 of the groups selected from the following (1) to (22):

(1) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl, wherein the alkyl, alkenyl or alkynyl may be substituted with 1 to 5 of OR<sup>21</sup>, OCOR<sup>22</sup>, OCOOR<sup>23</sup>, NR<sup>24</sup>R<sup>25</sup>, NR<sup>26</sup>COR<sup>22</sup>, NR<sup>26</sup>COOR<sup>23</sup>, COOR<sup>23</sup>, COOR<sup>23</sup>, CONR<sup>24</sup>R<sup>25</sup>, SO<sub>2</sub>R<sup>22</sup>, SO<sub>2</sub>R<sup>22</sup>, SO<sub>2</sub>NR<sup>24</sup>R<sup>25</sup>, NR<sup>26</sup>SO<sub>2</sub>R<sup>22</sup>, B(OH)<sub>2</sub>, SR<sup>21</sup>, halogen, nitro or cyano, (2) oxo, (3) OR<sup>21</sup>, (4) OCOR<sup>22</sup>, (5) OCOOR<sup>23</sup>, (6) NR<sup>24</sup>R<sup>25</sup>, (7) NR<sup>26</sup>COR<sup>22</sup>, (8) NR<sup>26</sup>CONR<sup>24</sup>R<sup>25</sup>, (9) NR<sup>26</sup>COOR<sup>23</sup>, (10) COOR<sup>23</sup>, (11) COR<sup>22</sup>, (12) CONR<sup>24</sup>R<sup>25</sup>, (13) SO<sub>2</sub>R<sup>22</sup>, (14) SOR<sup>22</sup>, (15) SO<sub>2</sub>NR<sup>24</sup>R<sup>25</sup>, (16) NR<sup>26</sup>SO<sub>2</sub>R<sup>22</sup>, (17) B(OH)<sub>2</sub>, (18) SR<sup>21</sup>, (19) halogen, (20) nitro, (21) cyano or (22) ring E;

 $R^{21}$  represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with COR<sup>22</sup>, NR<sup>24</sup>R<sup>25</sup> or ring E, or (iii) ring E;

R<sup>22</sup>, R<sup>23</sup>, R<sup>24</sup>, R<sup>25</sup> and R<sup>26</sup> each independently represents (i) hydrogen, (ii) C1-15 alkyl, C2-15 alkenyl or C2-15 alkynyl which may be substituted with ring E. or (iii) ring E:

ring E represents a C3-15 monocyclic, bicyclic or tricyclic carbocyclic group, or a 5to 15-membered monocyclic, bicyclic or tricyclic heterocyclic group which contains 1 to 4 nitrogen atoms, 1 or 2 oxygen atoms and/or one sulfur atom, and

ring E may be substituted with 1 to 5 of (i) C1-15 alkyl which may be substituted with phenyl, (ii) halogen, (iii) phenyl, (iv) C1-15 alkoxy, (v) hydroxyl, (vi) amino, (vii) mono(C1-8 alkyl)amino, or (viii) di(C1-8 alkyl)amino; and

Y represents

wherein G represents a bond or a methylene;

U.S. Application No.: 10/538,758

ring J represents; and

W represents hydrogen, a methyl, an ethyl, an isobutyl, a 3-methyl butyl, a 2-ethylbutyl, a cyclohexylmethyl, a cyclohexyl, a cyclopentyl, a benzyl, a benzene, cyclohexanol, 1-(cyclohexylcarbonyl)piperidine, a tetrahydropyran-4-yl or a piperidine,

or a salt thereof.

Claim 34. (canceled)